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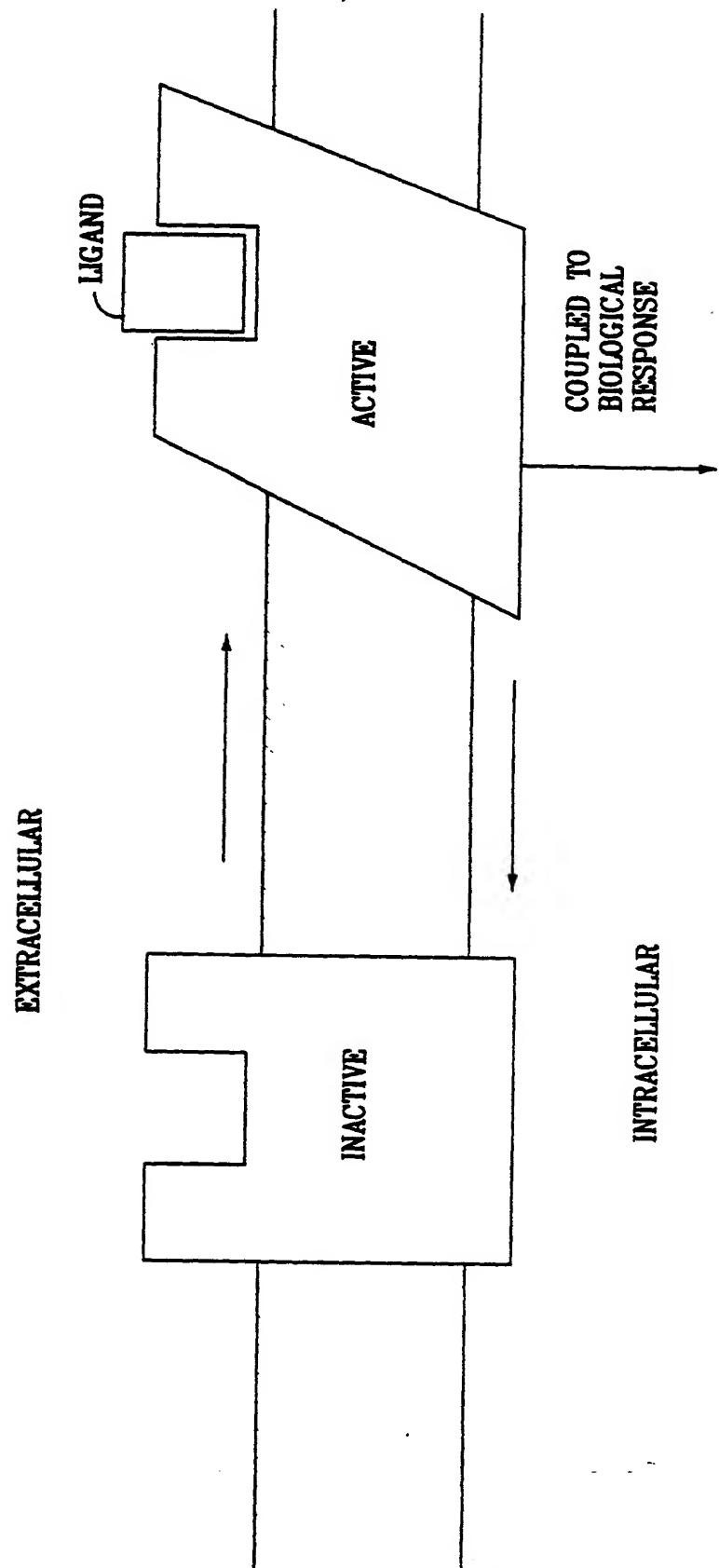


FIG. 2

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FIG. 3A

ATGGATATTCTTGTGAAGAAAATCTTCTTGAGCTCAACTACGAACCTCCCTAATGCAATTA
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TTTAACCTGGACAGTCGACTCTGAAAATCGAACCAACCTTCTGTGAAGGGTGCCTCTCACCG
TCGTGTCTCCTTACTTCATCTCCAGGAAAAAACTGGTCTGCTTACTGACAGCCGTAGTGA
TTATTCTAATCTGGAAACATACTCGTCATGCCAGTGTCCCTAGAGAAAAAGCTGC
AGAATGCCACCAACTATTCCTGATGTCATGCCAGTGTGATATGCTGGCTGGTTCTTGT
CATGCCCGTGTCCATGTTAACCATCCTGTATGGTACCGGTGCCCTGCCGAGCAAGCTTGT
GCAGTCTGGATTACCTGGACGTGCTTCTCCACGGCCTCCATGCACCTCTGCCCATCT
CGCTGGACCGCTACGTCGCCATCCAGAATCCCATCCACAGCCGTTCACTCCAGAACTA
AGGCATTCTGAAAATCATTGCTTTGGACCATATCAGTAGGTATATCCATGCCAATACCAG
TCTTGGGCTACAGGACGATTGAAAGGTCTTAAGGAGGGAGTTGCTTACTGCCGATGATA
ACTTTGTCCTGATGGCTTTGTGTCACTTCATCCCTAACCATCATGGTATCACCTAC
TTCTAATCAAGTCATCCAGAAAGAAGCTACTTGTGTGAAGTGTATCTGGCACACGG
GCCAAATTAGCTTCTTCAGCTCCTCCCTCAGAGTCTTGTCTTCAGAAAAGCTCTCCAGC
GGTCGATCCATAGGGAGCCAGGGTCTACACAGGCAGGAGGACTATGCAGTCCATAGCAAT
GAGCAAAAGGCATGCAAGGTGCTGGCATCGTCTTCTGTGTTGTGGTATGTGGTGCCT
TTCTTCATCACAAACATCATGGCGTCATCTGCAAAGAGTCCTGCAATGAGGATGTCATTGGG
GCCCTGCTCAATGTGTTGTTGGATCGGTTATCTCTTCAGCAGTCACCCACTAGTCTACA
CACTGTTCAACAAGACCTATAGGTCAGCCCTTCACGGTATATCAGTGTCAAGTACAAGGAAA
ACAAAAAAACCATTGCAAGTTAATTAGTGAACACAATACCGGCTTGGCCTACAAGTCTAGCC
AACTCAAATGGACAAAAAGAATTCAAAGCAAGATGCCAAGACAACAGATAATGACTGC
TCAATGGTTGCTCTAGGAAAGCAGTATTCTGAAGAGGCTCTAAAGACAATAGCGACGGAGT
GAATGAAAAGGTGAGCTGTGTGA

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FIG. 3B

MDILCEENTSLSSTTNSQLNDDNRILYSNDFNSGEANTSDAFNWTVDSENRTNLSCEGCLSPSCL
SLLHLQEKNWSALLTAVVILTIAGNLVIMAVSLEKKLQNATNYFLMSLAIADMLLGFLVMPVSM
LTILYGYRWPLPSKLCAVWIYLDVLFSTASIMHILCAISLDRYVAIQNPIHHSRFNSRTKAFLKILAVW
TISVGISMPIPVFGLQDDSKVFKEGSCLLADDNFVLIGSFVSVFFIPLTIVITYFLTIKSLQKEATLCVS
DLGTRAKLASFSFLPQSSLSEKLFQRSIHREPGSYTGRRTMQSISNEQKACKVLGIVFFLFVVMWC
PFFITNIMAVICKESCNEDEVIGALLNVFWIGYLSSAVNPLVYTLFNKTYRSAFSRYIQCQYKENKK
PLQLILVNTIPALAYKSSQLQMGQKKNSKQDAKTTDNDCSMVALGKQYSEEASKDNDGVNEKV
SCV

FIG. 4B

MVNLRNAVHSFLVHLIGLLVWQCDISVSPVAAIVTDIFNTSDGGRFKFPDGVQNWPALSIVIIMTIGGN
ILVIMAVSMEKKLHNATNYFLMSLAIADMLVGLLVMPLSLLAILYDYVWPLPRYLCPVWISLDVLFSTASI
MHILCAISLDRYVAIRNPIEHHSRFNSRTKAIMKIAIWAIIGVSVPIPVGILRDEEKVFVNNTTCVLNDPN
FVLIGSFVAFFIPLTIVITYCLTIYVLRRQALMLLHGHTEEPPGLSLDFLKCCKRNTAEEENSANPNQDQ
NARRRKKKERRPRGTMQAINNERKASKVLGIVFFVFLIMWCPFFITNLSVLCEKSCNQKLMEKLLNVFW
IGYVCSCGINPLVYTLFNKTYRRAFSNYLRCNYKVEKKPPVRQIPRVAATALSGRELVNVNTYRHTNEPVIEK
ASDNEPGIEMQVENLELPVNPSVVSERISSV

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FIG. 4A

ATGGTGAACCTGAGGAATGCGGTGCATTCAATTCTGTGCACCTAATTGCCATTGGTTGGC
AATGTGATATTCTGTGAGCCCAGTAGCAGCTATAGTAAGTACATGACATTCAATACCTCCGATG
GTGGACGCTCAAATTCCCAGACGGGTACAAACTGCCAGCACTTCAATGTCATCATAA
TAATCATGACAATAGGTGGAACATCCTGTGATCATGGCAGTAAGCATGGAAAAGAAACTG
CACAAATGCCACCAATTACTCTTAATGTCCTAGCCATTGCTGATATGCTAGTGGGACTACTTG
TCATGCCCTGTCTCCTGGCAATCCTTATGATTATGCTGCCACTACCTAGATATTGTG
CCCCGTCTGGATTCTTATGATTGTTTCAACAGCGTCCATCATGCACCTCTGGCTATAT
CGCTGGATCGGTATGTAGCAATACGTAATCCTATTGAGCATAGCCGTTCAATTGGGACTA
AGGCCATCATGAAGATTGCTATTGTTGGCAATTCTATAGGTGTATCAGTCCTATCCCTGT
GATTGGACTGAGGGACGAAGAAAAGGTGTTGTGAAACAACACGACGTGCGTCAACGACC
CAAATTCTGTTCTTATTGGTCCTCGTAGCTTCTCATACCGCTGACGATTGGTGTATTAC
GTATTGCCTGACCATCTACGTTCTGCGCCGACAAGCTTGTACTGCACGCCACACGA
GGAACCGCCTGGACTAAGTCTGGATTCTGAAGTGTGCAAGAGGAATACGCCAGGAAG
AGAACTCTGCAAACCTAACCAAGACCAGAACGACGCCGAAGAAAGAAGAAGGAGAGACG
TCCTAGGGGACCATGCAGGCTATCAACAAATGAAAGAAAAGCTTGTGAAAGTCCTGGGATTG
TTTCTTGTGTTCTGATCATGTGGTCCCATTTCATTACCAATATTCTGTCTGTTCTTG
AGAAGTCCTGTAACCAAAAGCTCATGGAAAAGCTTGTGAAATGTTGTTGGATTGGCTAG
TTTGTTCAGGAATCAATCCTCTGGTGTACTCTGTTCAACAAAATTACCGAAGGGCATTCTC
CAACTATTGCGTTGCAATTATAAGGTAGAGAAAAGCTCCTGTCAGGCAGATTCCAAGAGT
TGCCGCCACTGCTTGTCTGGAGGGAGCTTAATGTTAACATTATCGGCATACCAATGAACC
GGTGTGAGAAAGCCAGTGACAATGAGCCGGTATAGAGATGCAAGTTGAGAATTAGAGT
TACCAAGTAAATCCCTCCAGTGTGGTTAGCGAAAGGATTAGCAGTGTGTGA

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FIG. 5A

ATGGTGAACCTGAGGAATGCGGTGCATTCAATTCTGTGCACCTAATTGGCCTATTGGTTGGCAAT
GTGATATTCTGTGAGCCCAGTAGCAGCTATAGTAAGTACATGGACATTTCATAACCTCCGATGGTGGACG
CTTCAAATTCCCAGACGGGGTACAAACTGCCAGCAGCACTTCATAATCGTCATCATAATAATCATGAC
AATAGGTGCAACATCCTGTGATCATGGCAGTAAGCATGGAAAAGAAAAGTCACAATGCCACCA
ATTACTCTTAATGTCCTAGCCATTGCTGATATGCTAGTGGACTACTTGTATGCCCTGTCTCTC
CTGGCAATCCTTATGATTATGCTGGCCATCAACTAGATATTGCTGGGACTATCGCTGGATCGGTATGCAATA
TGTTTATTTCACACAGCGTCCATCATGCACCTCTGCCTATATCGCTGGATCGGTATGCAATA
CGTAATTCTATTGAGCATAGCCGTTCAATTGGACTAAGGCCATCATGAAGATIGCTATTGTT
GGCAATTCTATAGGTGTATCAGTCCATCCCTGTGATTGGACTGAGGGACGAAGAAAAGGTGT
TCGTGAACAACACGACGTGCGTGTCAACGACCCAAATTGCTTATTGGTCCTCGTAGCTT
CTTCATACCGCTGACGATTATGGTATTACGTATTGCTGACCATCTACGTTCTGCACGACAAGCT
TTGATGTTACTGCACGCCACACCGAGGAACCGCTGGACTAAGTCTGATTTCCTGAACTGCTGC
AAGAGGAATACGCCGAGGAAGAGAACTCTGCAAACCTAACCAAGACCAGAACGACGCCAA
GAAAGAAGAAGGAGAGACGTCCCTAGGGCACCATGCAGGCTATCAACAATGAAAGAAAAGCTAA
GAAAGTCCTGGATTGTTCTTGTGTTCTGATCATGTGGTCCCATTTCATTACCAATATC
TGTCTGTTCTTGTGAGAAGTCCTGTAACCAAAAGCTCATGGAAAAGCTCTGAATGTGTTGTTG
GATTGGCTATGTTGTTCAAGGATTCAATCCTCTGGTGTATACTCTGTTCAACAAAATTACCGAAGG
GCATTCTCCAACATTGCGTTGCAATTATAAGGTAGAGAAAAAGCCCTCTGTCAGGCAGATTCCA
AGAGTTGCCGCCACTGCTTGTCTGGAGGGAGCTTATTGTTAACATTATGGCATAACATGAA
CCGGTGATCGAGAAAGCCAGTGACAATGAGCCGGTATAGAGATGCAAGTTGAGAATTAGAGTT
ACCAGTAAATCCCTCCAGTGTGGTTAGCGAAAGGATTAGCAGTGTGTGA

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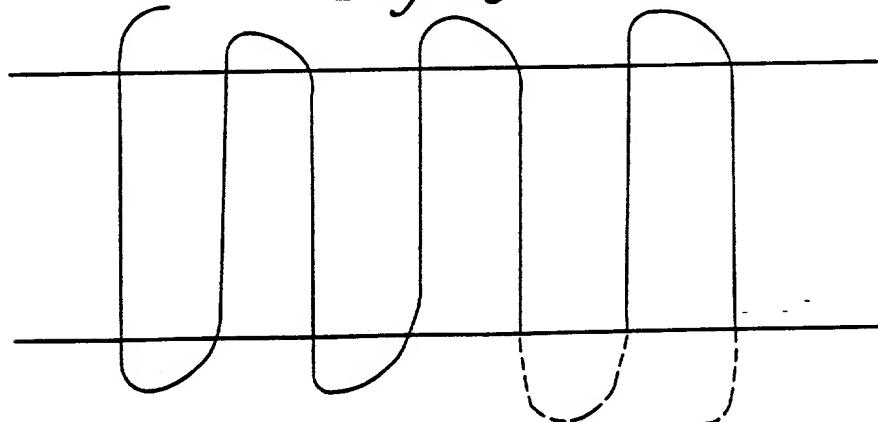
FIG. 5B

MVNLRNAVHSFLVHLIGLLVWQCDISVSPVAAIVTDIFNTSDGGRFKFPDGVQNWPALSIVIIIIMTI
GGNILVIMAVSMEKKLHNATNYFLMSLAIADMVLGLLVMPLSLLAILYDYVWPLPRYLCPVWISL
DVLFSTASIMHLCaisLDryVAIRNPIEHSRFNSRTKAIMKIAIVWAISIGVSVPVPVIGLRDEEKVFV
NNTTCVLNDPNFVLIGSFVAFFIPLTIVITYCLTIVLRRQALMILLHGHTEEPPGLSDFLKCCKRN
TAEEENSANPNQDQNARRKKKERRPRGTMQAINNERKAKVVLGIVFFVFLIMWCPFTTNILSVL
CEKSCNQKLMEKLLNVFWIGYVCSGINPLVYTLFNKIYRRAFSNYLRCNYKVEKKPPVRQIPRV
AATALSGRENLNVNTYRHTNEPVIEKASDNEPGIEMQVENLELPVNPSVVSERISSV

FIG. 6B

MDILCEENTSLSSTTNSLMQLNDDNRLYSNDFNSGEANTSDAFNWTVDSENRTNLSCEGCLSPSCL
SLLHLQEKNWSALLTAVVILLTAGNILVIMAVSLEKKLQNATNYFLMSLAIADMILLGFLVMPVSM
LTLYGYRWPLPSKLCAVWVYLDVLFSTASIMHLCaisLDryVAIQNPIHHSRFNSRTKAFLKIIAVW
TISVGISMPIPVGQLQDDSKVFKEGSCLLADDNFVLIGSFVSVFFIPLTIVITYFLTIKVLRQALMILL
HGHTEEPPGLSDLFLKCCKRNTAEEENSANPNQDQNARRKKKERRPRGTMQAINNERKAS
KVLGIVFFLFVVMWCPFTTNIMAVICKESCNEVGIGALLNVFWIGYLSAVNPLVYTLFNKIYR
RAFSNYLRCNYKVEKKPPVRQIPRVAAATALSGRENLNVNTYRHTNEPVIEKASDNEPGIEMQVE
NLELPVNPSVVSERISSV

FIG. 6C



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FIG. 6A

ATGGATATTCTTGTAGAGAAAATCTTCTTGAGCTCACTACGAACCTCCATAATGCAATT
AATGATGACAACAGGCTCTACAGTAATGACTTAACTCCGGAGAAGCTAACACTCTGATGCA
TTTAACTGGACAGTCGACTCTGAAAATCGAACCAACCTTCCTGTAGAGGGTGCCTCTCACCG
TCGTGTCTCCTTACTTCATCTCAGGAAAAAACTGGTCTGCTTACTGACAGCCGTAGTGA
TTATTCTAACTATTGCTGGAAACATACTCGTCATCATGGCAGTGTCCCTAGAGAAAAAGCTGC
AGAATGCCACCAACTATTCCTGATGTCATTGCCATAGCTGATATGCTGCTGGGTTCTTGT
CATGCCGTGTCCATGTTAACCATCCTGTATGGGTACCGGTGCCCTGCCAGCAAGCTTGT
GCAGTCTGGATTTACCTGGACGTGCTTCTCCACGGCCTCCATCATGCACCTCTGCCATCT
CGCTGGACCGCTACGTGCCATCCAGAATCCCATCCACCACAGCCGCTCAACTCCAGAACTA
AGGCATTCTGAAAATCATTGCTGTTGGACCATATCAGTAGGTATATCCATGCCAATACCA
TCTTGGGCTACAGGACGATTGAAAGGTCTTAAGGAGGGAGTTGCTTACTGCCGATGATA
ACTTGTCTGATGGCTCTTGTGTCATTCTAACCATCATGGTATCACCTAC
TTCTAACTATCAAGGTTCTGCCGACAAGCTTGTACTGCACGGCCACACCGAG
GAACCGCCTGGACTAAGTCTGGATTTCTGAAAGTGTGCAAGAGGAATACGGCCAGGA
AGAGAACTCTGCAAACCTAACCAAGACCAGAACGCACGCCAGAAAGAAGAAGGAG
AGACGTCTAGGGCACCATGCAGGCTATCAACAATGAAAGAAAAGCTCGAAGGTACT
GGGCATCGTCTTCTGTTGTGGTATGTGGTGCCTTCTCATCACAAACATCATGGCC
GTCATCTGCAAAGAGTCCTGCAATGAGGATGTCATTGGGCCCTGCTCAATGTGTTGG
ATCGGTTATCTCTTCTGAGCAGTCAACCCACTAGTCTATACTCTGTTCAACAAATTACCGA
AGGGCATTCTCAAATTTGCGTTGCAATTATAAGGTAGAGAAAAAGCCTCTGTCAG
GCAGATTCCAAGAGTTGCCGCACTGCTTGTCTGGAGGGAGCTTAATGTTAACATT
ATCGGCATACCAATGAACCGGTATCGAGAAAGCCAGTGACAATGAGCCGGTATAGAG
ATGCAAGTTGAGAATTAGAGTTACAGTAAATCCCTCCAGTGTGGTTAGCGAAAGGAT
TAGCAGTGTGTGA

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FIG. 7A

ATGGATATTCTTGTGAAGAAAATCTTCTTGTCAACTACGAACCTCCCTAATGCAATTAA
AATGATGACAACAGGCTCTACAGTAATGACTTTAACTCCGGAGAAGCTAACACTCTGATGCA
TTAACTGGACAGTCGACTCTGAAAATCGAACCAACCTTCTGTGAAGGGTGCCTCTCACCG
TCGTGTCTCTCTTACTTCATCTCCAGGAAAAAAACTGGTCTGCTTACTGACAGCCGTAGTGA
TTATTCTAACTATTGCTGGAAACATACTCGTCATCATGGCAGTGTCCCTAGAGAAAAAGCTGC
AGAATGCCACCAACTATTCTGATGTCACTGCCATAGCTGATATGCTGCTGGGTTCTGT
CATGCCCGTGTCCATGTTAACCATCCTGTATGGGTACCGGTGGCCTCTGCCAGCAAGCTTGT
GCAGTCTGGATTACCTGGACGTGCTTCTCCACGCCATCATGCACCTCTGCCATCT
CGCTGGACCGCTACGTCGCCATCCAGAACCCATCCACCACAGCCGTTCAACTCCAGAACTA
AGGCATTCTGAAAATCATTGCTTTGGACCATATCAGTAGGTATATCCATGCCAATACCAG
TCTTGGGCTACAGGACGATTGAAAGGTCTTAAGGAGGGAGTTGCTTACTGCCGATGATA
ACTTTGTCCTGATCGGCTCTTGTCATTTCATTCCCTGACGATTATGGTATTACGT
ATGGCCTGACCATCTACGTTCTGCCGACAAGCTTGTATGTTACTGCACGCCACACC
GAGGAACGCCCTGGACTAAGTCTGGATTCTGAAAGTGTGCAAGAGGAATACGCCGA
GGAAGAGAACTCTGCAAACCTAACCAAGACCAAGAACGCACGCCGAAGAAAGAAGAAG
GAGAGACGTCCTAGGGCACCATGCAGGCTATCAACATGAAAGAAAAGCTAAGAAAGT
CTTGGGATTGTTCTTGTGTTCTGATCATGTTGCTGCCCTTCTCATCACAAACATCA
TGGCGTCATCTGCAAAGAGTCTGCAATGAGGATGTCATTGGGCCCTGCTCAATGTTTG
TTGGATCGGTTATCTCTTCAGCAGTCAACCCACTAGTCTATACTCTGTTCAACAAAATT
ACCGAAGGGCATTCTCAAACTATTGCGTTGCAATTATAAGGTAGAGAAAAAGCCTCT
GTCAGGCAGATTCCAAGAGTTGCCACTGCTTGTGAGGGAGCTTAATGTTAA
CATTATCGGCATACCAATGAACCGGTGATCGAGAAAGCCAGTGACAATGAGCCGGTA
TAGAGATGCAAGTTGAGAATTAGAGTTACCAAGTAAATCCCTCAGTGTGTTAGCGAA
AGGATTAGCAGTGTGTA

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FIG. 7B

MDILCEENTSLSSTTNSLMQLNDDNR~~LYS~~ND~~F~~NSGEANTSDAFNWTVDSENRTNLSCEGCLSPSCL
SLLH~~Q~~EKNWSALLTAVVILTIAGN~~L~~VIMAVSLEKKLQNATNYFLMSLAIADM~~L~~GFLVMPVSM
LT~~I~~LYGYRWPLPSKLC~~A~~VW~~I~~YLDVLF~~S~~TASIMHILCAISLD~~R~~YVAIQNPIHRSFNSRTKAFLKIIAVW
TISVGISM~~P~~IPV~~F~~GLQ~~D~~DSKV~~F~~KEGSC~~L~~ADDNFV~~L~~IGSFV~~S~~FFIPLTMV~~T~~TYCL~~T~~YVLRRQALML
LHGHTIEPPGLSLDFLKCCKRNTAEEENSANPNQDQNARRKKERRPRGTMQAINNERKA
KKVILGIVFFVFLIMCPFFITNIMAVICKESCNE~~D~~VIGALLNVFWIGYLSSAVNPLVYTLENKIY
RRAFSNYLRCNYKVEKKPPVRQIPRVAAT~~A~~LSGRELN~~V~~NIYRHTNEP~~V~~EKASDNEPGIEMQV
ENLELPVN~~P~~SSVV~~S~~ERISSV

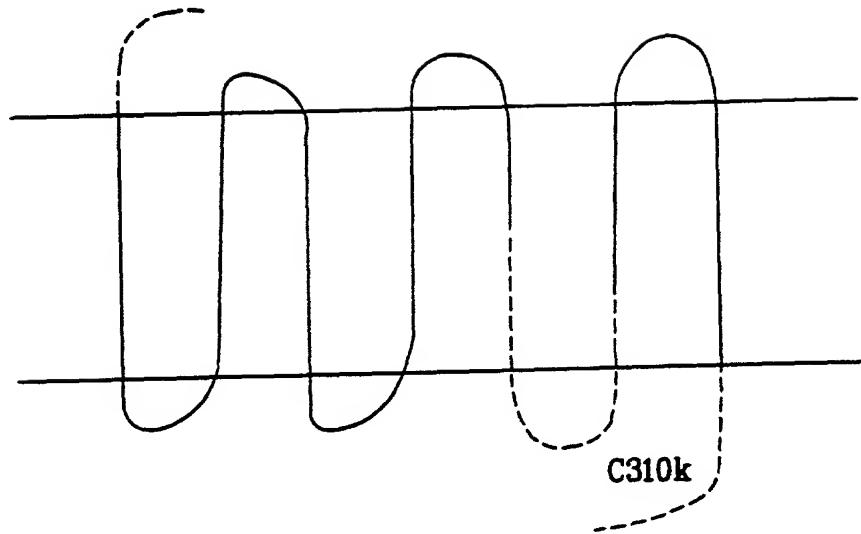
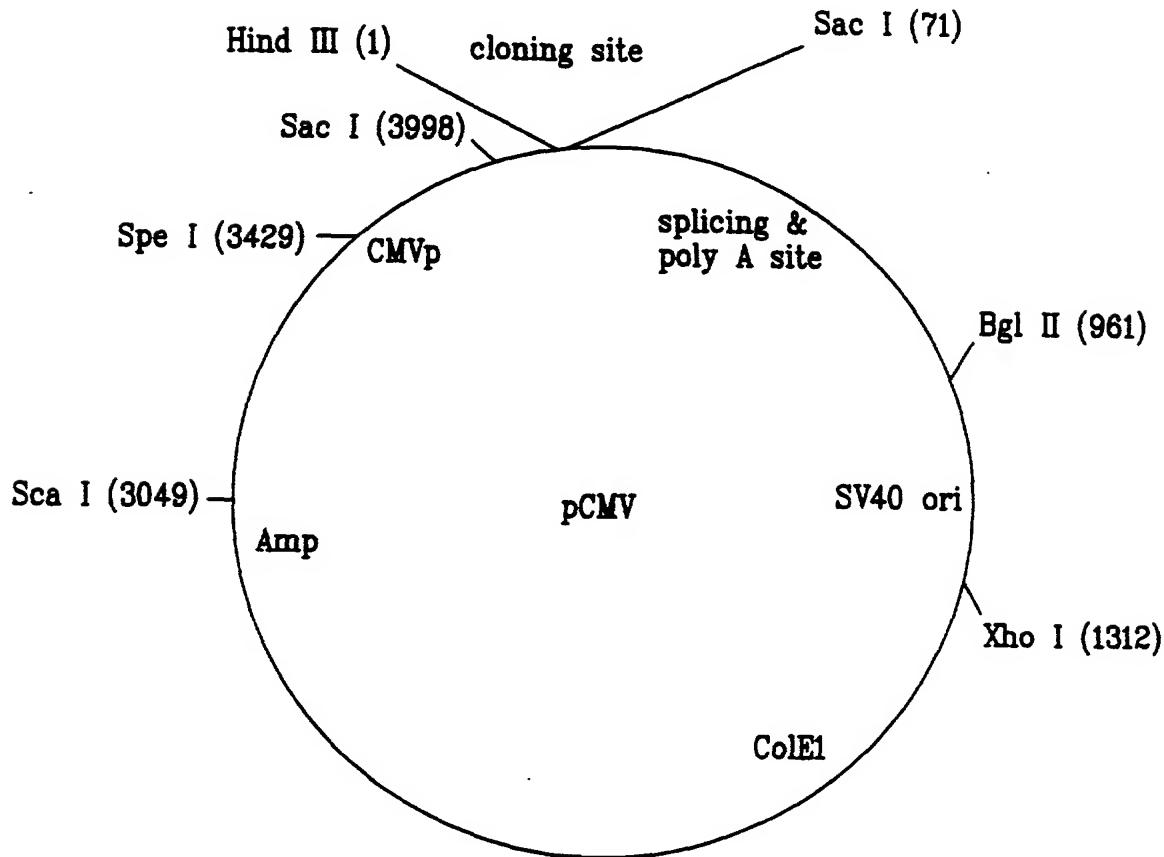


FIG. 7C

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- *Xho I (1312) to Sca I (3049) is identical to pRc/RSV Xho I (3045) to 4782.
- *Sca I (3049) to 4070 is identical to pCDM7 Amp Scal (2524) to 3545.
- *multiple cloning site includes Hind III to Sac I of pBluescript II.
- *110 to 1312 is identical to pCMD7 Amp 76 to 1278.
- *Sac I and Spe I in MCS are not unique.

FIG. 8

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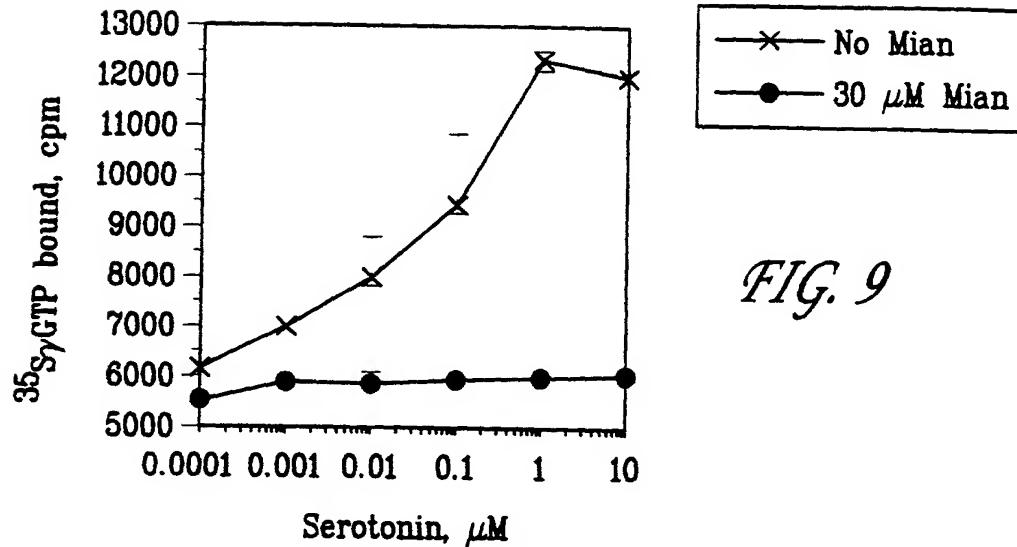


FIG. 9

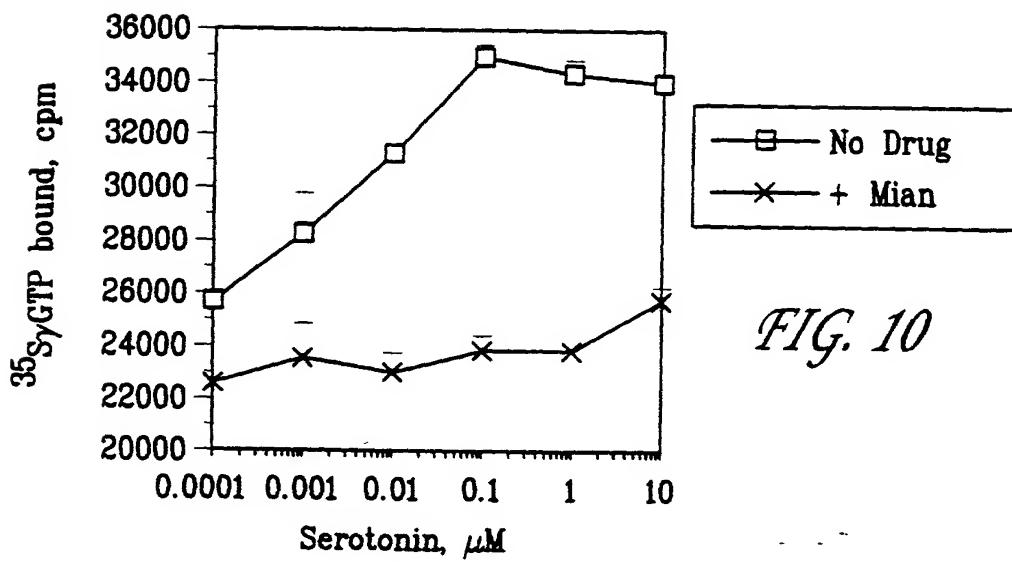


FIG. 10

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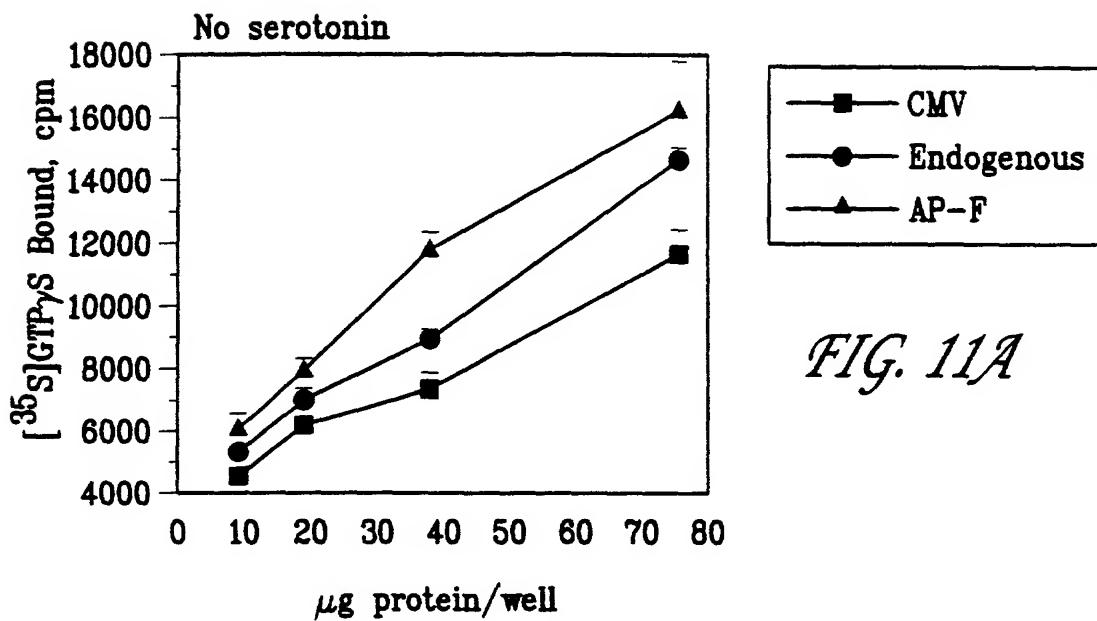


FIG. 11A

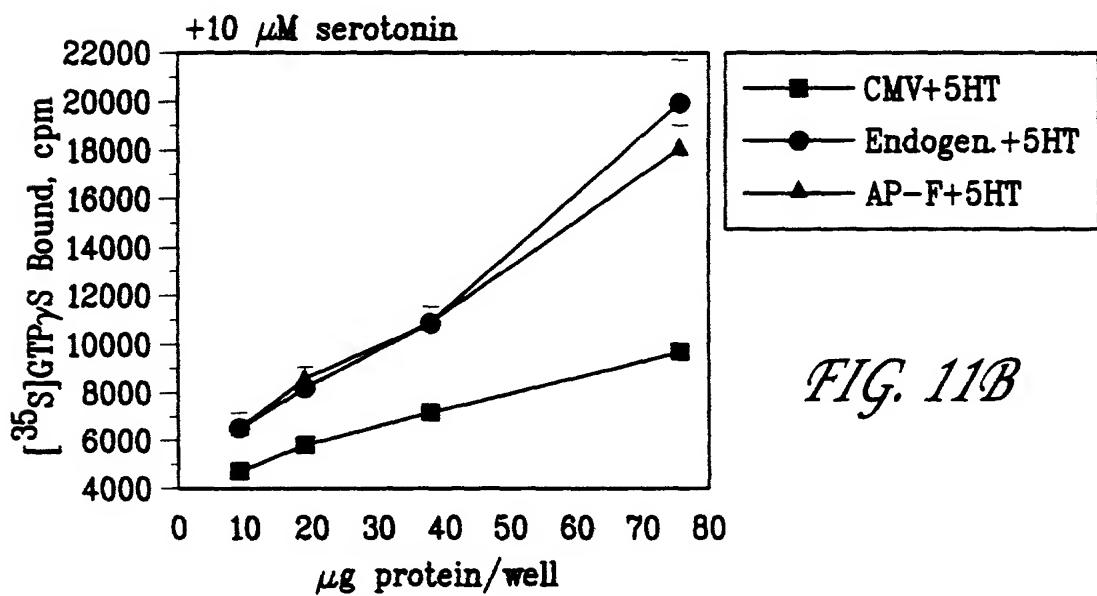


FIG. 11B

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FIG. 12

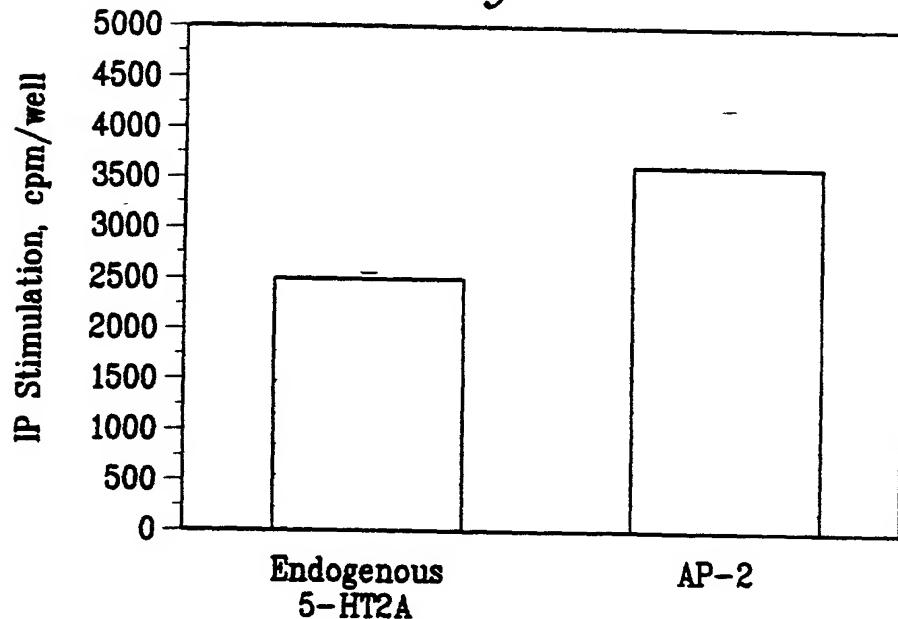
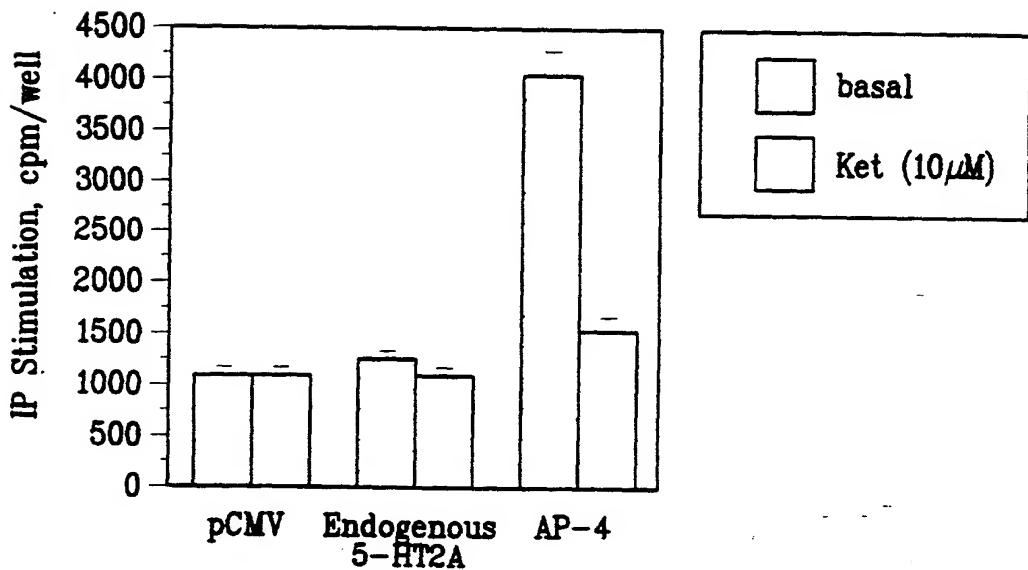


FIG. 13



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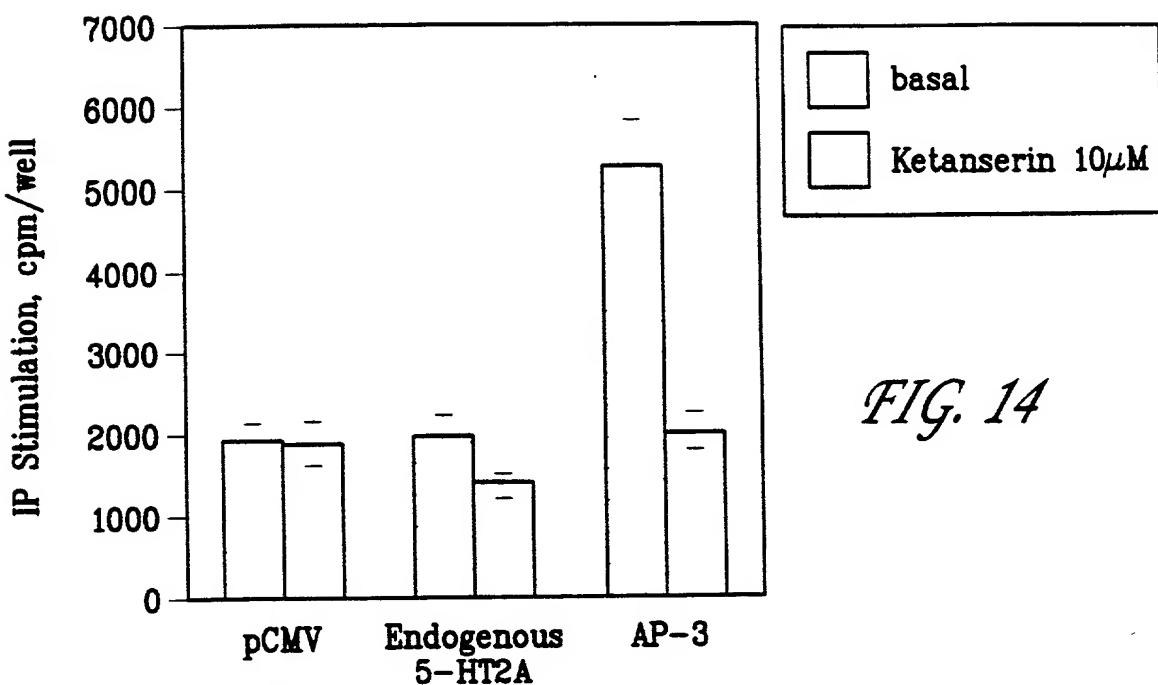


FIG. 14

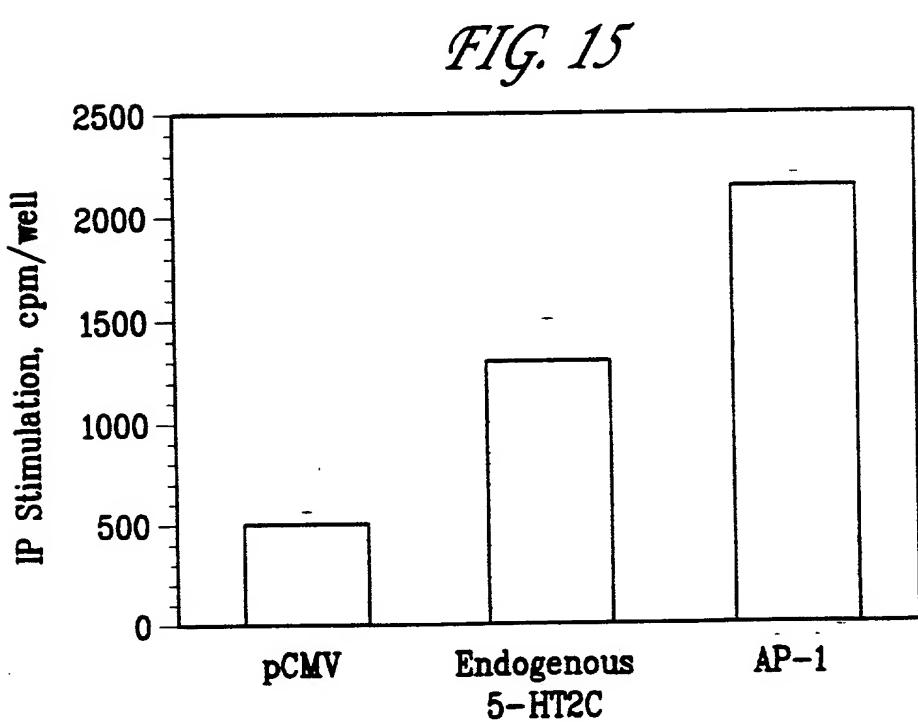


FIG. 15

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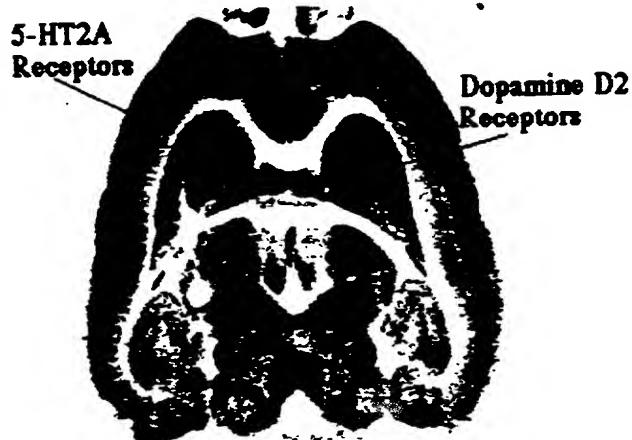


FIG. 16A



FIG. 16B



FIG. 16C

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